

**Project: #1 - SMALL TREE-TOPPING****Project: #2 - DOWN WOOD CREATION**

**End Result:** Improve stand structure and species diversity in even-aged monoculture plantations of Douglas-fir. The end result will create snags, promote cavity development and down logs from trees within units to benefit a variety of wildlife species.

Measure of accomplishment: Trees felled and trees topped

Quantity: 508 for Project #1, 329 for Project #2

Subdivision Numbers	20	22	25	29	30	31
Subdivision Acres	98	36	33	10	37	22
Project #1 - number of trees to top	248	90	75	0	95	0
Project #2 - number of trees to fall	0	90	75	0	95	69

- 1) Trees selected for treatment will consist only of plantation trees that are not marked with orange or pink bands, and will be distributed following the criteria described below in the identified subdivisions.
- 2) Chainsaws will be used for all tree-topping and down wood creation. Other methods of tree topping such as blasting or girdling are not permitted. There may be times when the use of chainsaws are restricted, such as during the fire restricted season, or due to daily timing restrictions for wildlife. During these times, handsaws (non-motorized) may be used.
- 3) All trees selected will be live Douglas-fir or hemlock trees. Hemlock will not be cut where this species is less than 50% of the specific treatment area. Trees selected will be sound: shall not have forked or broken tops, crooked boles, large scars, or other unique structural characteristics.
- 4) **Distribution shall be clumped or grouped. Groups and clumps shall be at least 100' from a stream or open road and at least 75' uphill and 50' downhill from any other road.**
  - a) Mingle topped trees and down wood (Tree Falling) in large clumps, but combined opening size should not exceed  $\frac{1}{2}$  acre; for example 120' wide and 200' long.
  - b) Clump is defined as an area containing 10 or more treated trees that are within 50' of another treated tree of the same clump. Clumped trees should be a combination of felled or topped trees. Total affected area when mingling treatments shall not exceed  $\frac{1}{2}$  acre; Minimum size of a clump should be 10 treated trees; such as 5 felled and 5 topped. Distance between clumps with more than 10 treated trees shall be 400-800 feet.
  - c) Group is defined as 2 to 9 treated trees that are within 50' of another treated tree of the same group. Distance between groups shall be 200-400 feet.
  - d) Location of treatment areas should be along secondary ridges and gentler slopes where possible. Locate clumps first around any big leaf maple trees - if present, second around large alder (> 8" dbh) - if present, and third around one or two "dominant" live conifer trees.

**Chainsaw topping:** general intent is to create snags and live topped trees in equal proportion, but a ten percent tolerance is acceptable; e.g., 40% snags and 60% live topped or vice versa.

- 5) **1.1a: Chainsaw topping: Snag trees.** Intent is to create a dead tree/snag.

- a) **Snag trees will have two to four live limbs over five feet in length and the snag will be at least 35' tall.**

- b) Remove epicormic branches, limbs shorter than 5 feet and any other live limbs below treatment except the 2-4 required.
  - c) The sawed surface will have 4 grooves, each at least 4 inches deep. Grooves will be created in a tic-tac-toe grid formation.
- 6) **1.1b: Chainsaw topping: Live trees.** The intent is to promote development of a stove-pipe cavity in a live tree. Topping to the specified standards will provide good conditions for fungi that cause heart-rot, and retaining adequate amount of live limbs below topping site should keep the tree alive and allow upper most limbs to grow vertically and eventually provide cover over the developing cavity.
- a) Live trees will be in the largest size class available.
  - b) Live trees shall retain at least 15 live limbs that are at least five feet in length (intent is to keep these trees alive). Retain all epicormic branches and shorter live limbs.
  - c) Live tree diameter at topping height shall be greater than 6 inches.
  - d) Live trees will have a minimum of 1-foot of bole area above the last whorl of green limbs. This will facilitate rot development above last live whorl of branches. The sawed surface will have 4 grooves, each at least 4 inches deep. Grooves will be created in a tic-tac-toe grid formation.
  - e) Trees meeting these specifications (a, b, c and d) for Live trees will generally be dominant trees with full crowns (30-50% crown ratio).
- 7) **1.6: Tree felling**
- a) At least 70% of felled trees shall be felled side-hill (within fifty degrees of horizontal). Over-lap felled trees where possible.
  - b) Minimum diameter at breast height (dbh) of felled trees will be 10".
- 8) **Marking treated trees**
- a) **Topping: Contractor will paint topped trees** with a band of orange paint at dbh level and orange tree number above dbh level and wrap orange and white striped flagging around the trees. "Wildlife Tree" signs and numbered tags will be placed at dbh. The numbered tag will be attached with one of the nails used for the "wildlife tree" sign to minimize nail holes. Nails shall not be completely nailed into the tree to allow for continued diameter growth on all live trees.
  - b) **Tree felling:** Contractor will establish an untreated tree as the clump identification tree by wrapping orange and white striped flagging around trees and painting two bands of orange paint around a tree and painting the clump or group number on the tree; e.g., C1 or G1.
- 9) **The Contractor will furnish paint, flagging, aluminum nails. Government will furnish "Wildlife Tree" signs and numbered tags.**
- 10) **Contractor will map** location of each clump/group with GPS. GPS location of individual trees is not required. Coordinates are NAD 83, UTM's. Contractor must provide an electronic and written file of coordinates to the Contract Administrator (CA). Electronic transfer can be accomplished by submitting a CD or by sending an email with the attached file. Acceptable electronic methods are listed below and shall include coordinates and corresponding name, number, and clump number for each clump. These methods are:
- a) **Preferred method:** Provide government with a GPX or GDB file with locations of clumps.
  - b) Contractor submit a CD with spreadsheet containing X column and Y column coordinates, and a column identifying corresponding data.
- 11) The Contractor is REQUIRED to submit a weekly plan of work at least two days before implementing each weekly plan. This plan shall be submitted to the project CA.
- 12) The Contractor is REQUIRED to inform the project CA within 7 days of when a subdivision has been accomplished and provide a completed tree register form with signature and a map showing accurate location of clumps or groups of treated trees

and their corresponding tree-numbers. See attached example of completed map and tree register form.

When: Work can occur anytime of year, with the following exceptions:

- **For operating restrictions, use felling restrictions described in K-G.3.1.5# PROJECT OPERATION SCHEDULE**
- Power tool use shall be restricted between April 1 and September 15 to two hours after sunrise to two hours before sunset.

**Inspection details:** contractor will provide inspection reports.

**Inspected by** a CA or other qualified inspector coordinating with wildlife biologist.

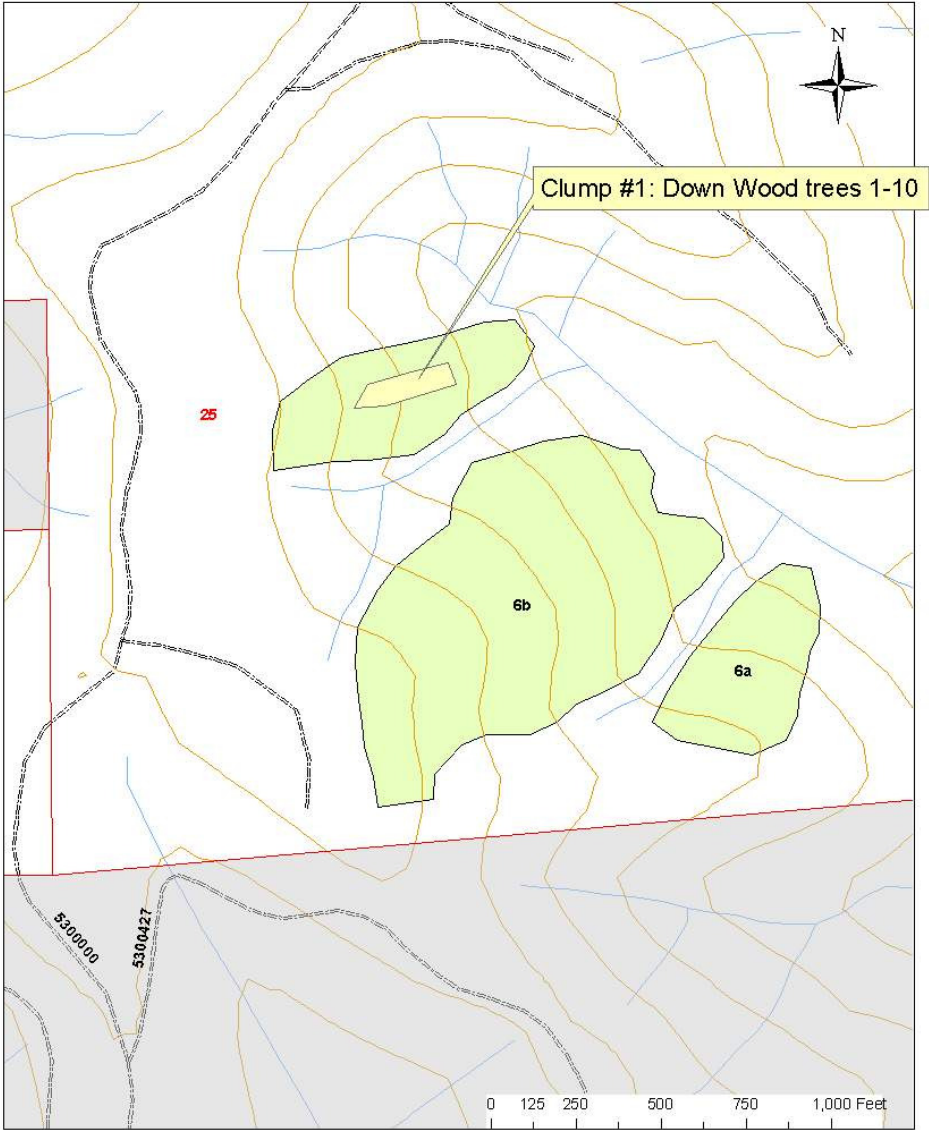
Tree registry Form: SMALL Saw Topping or Tree Felling; Siuslaw NF, Hebo RD.

Prepared by and date prepared: \_\_\_\_\_

Contract Name & Subdivision No. \_\_\_\_\_

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Example Sale - Unit 6





**Project # 3 - ROAD STORAGE, Forest Service Roads 1888111 and 1888118**

**End Result:** Roads will be stored to effectively block motorized vehicles, promote drainage, remove at risk culverts and stabilize fill slopes. Objective is to reduce the risk to road and natural resources from water drainage, sediment, transport, and storm damage.

**Project Description:** Project consists of storing two roads, 1888-111 and 1888-118. Project work consists of removing culverts and fills, installing water bars, pulling fill slopes on to the road template and placement of an earthen berm at the beginning of each project road. Projects are located in T6S R10W sections 22 and 27. See map for locations. Total length of both projects is approximately 0.33 miles. The road surface of both projects is aggregate.

**Location:** FS Road 1888-111 begins at mile post 0.0 and ends at approximate mile post 0.32 or station 7+00. FS Road 1888-118 begins at mile post 0.0 and ends at mile post 0.01 or station 0+70. (See Contract Area Map)

**Completion Date:** Completion date of the project is no later than October 15 of the same calendar year logging on Unit 22 of Panther Thin is completed.

**Project Work Items:** All work is on portions of forest roads 1888-111 and 1888-118 as described above.

Item Number	Work Item	Quantity	Description/Notes
1	Pull and Remove Culverts	4	On road 1888-111 only. 18" and 24" stream culverts; normal fill. See specs below
2	Install Earthen Barricades	2	One at the beginning of projects 1888-111 and 1888-118; to effectively close each road. See specs below
3	Install waterbars	As required by specs but estimate minimum of one every 200 feet or approximately 7 -10 total	Type I water bars on roads 1888-111 and 1888-118. See specs below.
4	Fill Slope Pull Back	300 cy	Pull fill slope material for approximately 280 feet along road 1888-111. See specs below

Item # 1 - Culvert and Fill Removal and Disposal Specs and Location: - The Contractor shall remove all culverts on road 1888-111 within the project work area (see map). Culvert locations have been flagged in the field with station numbers written on the flagging. Station numbers are listed below on the work listing. In the event flagging is missing, locate culvert using estimated mile post or station distance provided below.

Culvert Removal: The Contractor shall remove culverts as designated by the Government. The Contractor shall be responsible for disposal of the removed culverts in a legal manner and for the payment of any fees required and shall submit proof of legal disposal prior to final project acceptance.

Excavation of fill during culvert removal shall be accomplished in a manner that minimizes sedimentation from entering streams. Temporary sediment control structures such as silt fencing or straw bales for short term sediment abatement shall be installed as needed, immediately downstream before excavation on culverts that are running water.

Following culvert removal, any disturbed intermittent or live stream bed shall be reshaped to the natural stream gradient with sides sloped to a 1.5 to 1 grade. The re-established channel shall have a bottom width of a minimum of 4 feet or 1.5 times the diameter of the existing pipe, or whichever is greater. There are 3 known live stream beds within this project. The fourth crossing is a seep/swale crossing and may or may not be wet during removal.

Remove culverts and excavate all fill material down to the original live stream bed or bottom of pipe bedding. The removed fill material shall be placed against the cut slope and recontoured as close as possible to the original contours. The material shall be outsloped at a minimum of 20% gradient and no closer than 20 feet to the original stream channel.

Trees cut or otherwise removed in the clearing area for the culvert removals shall be felled directionally in a manner that protects the trees outside the road prism from damage. Place native material from the work area such as limbs, brush and small trees excavated during culvert fill removal on stream side slopes to reduce surface erosion.

1888-111 Culvert Work Listing. Mile posts and stations start at the 1888 junction.

Culvert Diameter Size	Mile Post (M.P.)	Station Number (marked on pink flagging)	Type
24"	0.06	3+20	Stream
18"	0.09	4+80	Seep/swale
24"	0.259	13+70	Stream
24"	0.265	14+00	Stream

Item #2 - Earthen Berm Road Closure Barricade Specs Location and Guidelines

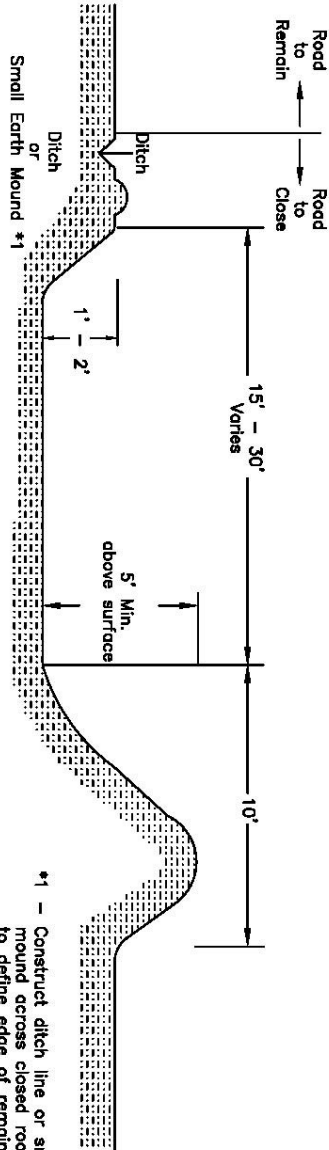
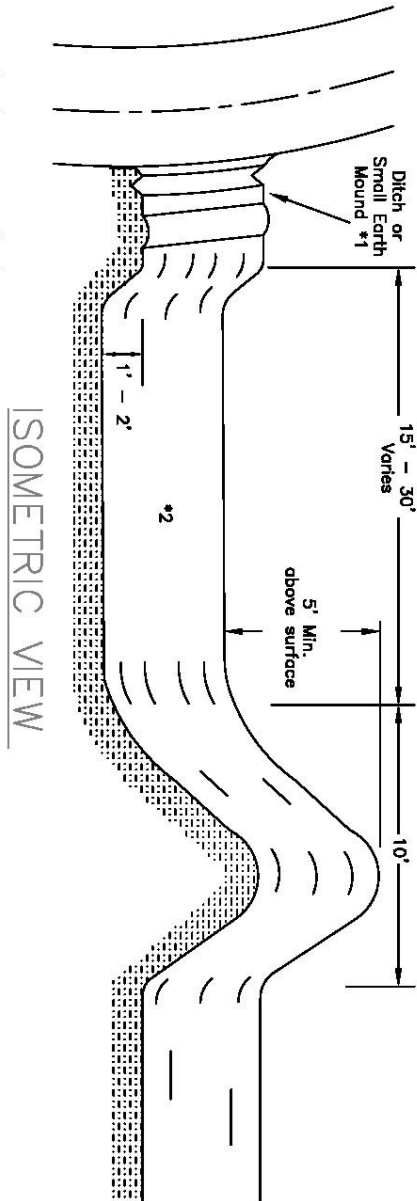
The Contractor shall place an earthen berm barricade to close off roads 1888-111 and 1888-118 to all motor vehicle traffic. The barricades shall be placed at a location flagged in the field. If flagging is missing, earthen barricades will be placed at the following stations or descriptions provided below. A Berm Barricade Typical Drawing is provided. Berm barricade shall be constructed to allow water drainage away from streams and other erodible surfaces. Place native material from the work area such as limbs, brush and small trees excavated during culvert fill removal on the top 1/3 of the earthen berm to reduce surface erosion and to discourage berm re-opening. Use boulders if needed to extend berm effectiveness on both left and right shoulders.



Road (Project)	Station/Mile Post	Description
1888111	0+50/0.01	Approximately 50 feet from the 1888 junction
1888118	0+70/0.01	Approximately 70 feet from the 1888 junction; just past the fill material on either side of the road

# ROAD CLOSURE - EARTH MOUND TYPICAL

PROJECT SHEET TOTAL  
SHEETS



- \*1 - Construct ditch line or small earth mound across closed road entrance to define edge of remaining road.
- \*2 - Slope Excavation area to drain

Item #3 - Waterbar Specs and Location Guidelines

The Contractor shall storm proof designated roads by installing water bars at locations flagged in the field, listed on work sheets, or at intervals as designated on the Typical Diagram(s) provided. The Government may increase or decrease the spacing intervals so as to fit specific road conditions. Roads 1888111 and 1888118 will not receive traffic; water bar installation type should be non-drivable, Type I.

Water bars shall be constructed so as to channel water away from existing ditch lines and across the road surface to the outside of the road shoulder. Water bars shall be self-maintaining. See Water Bar Typical.

Water Bar Location Process

The first step is to plan for water bars at critical locations using guidelines for water collection and discharge. Then select additional locations to meet spacing requirements shown in Table 1. See attached drawing for typical water bar locations.

Water Collection Guidelines

Place water bars at natural small drainages that may not have justified a ditch relief culvert at the time of design. Try to keep as much of the water in its natural route as possible even if it requires an extra water bar.

Place water bars to back-up removed culverts that provided ditch relief or natural channel flow.

Place water bars to prevent road surface and cut bank sedimentation from entering directly into natural drainage channels.

Place water bars to dissipate water prior to steep grades.

Place water bars at road seeps, springs and wet subgrades to collect this water and quickly discharge it off the road. These areas may be notorious for potholes or fill failure.

Place water bars to effectively reduce ditch erosion. Reduce the upper reach of the ditch by a length greater than the area showing ditch erosion. For example: if the lower 90 feet of ditch shows signs of erosion, eliminate at least the first 90 feet of ditch by using a water bar.

Water Discharge Guidelines - consider these items for all waterbars.

Discharge onto undisturbed areas, preferable rocky ground or areas protected with vegetative cover.

Avoid discharging directly over fills. Seek natural ground areas first and then areas along edges of fills.

**On steep slopes discharge on convex slopes rather than draws.**

**Avoid crossing road or shoulder cracks especially where steep slopes or side cast construction is evident.**

If a vegetated or rocky location is not found, reduce water bar spacing to match native soil conditions found in Table 1.

Waterbar Spacing Guidelines

Water bar location may be determined by measuring or estimating the distances and grades in Table 1. The road surface for this project is aggregate and contractor will use recommended spacing provided below for aggregated surfaced with vegetated/rocky discharge points. Care

should be taken not to exceed 150% of distances shown. During storms in 1996 several water bars exceeding 150% of recommended spacing received so much water that the water bars themselves had excessive erosion.

**The spacing shown for native surface roads is typical for most of the Siuslaw's soils. If fine and light soils (silt & silty sands) are encountered, reduce spacing by 20%. If silty clay or sandy clay soils are encountered, spacing may be increased up to 50%.**

**Table 1 Typical Water Bar Spacing**

Road grade	Aggregate surfaced with vegetated/rocky discharge point		Native surface or barren soil discharge points	
	Feet	Meters	Feet	Meters
1-3	600	200	100	35
4-6	300	100	80	25
7-9	200	70	70	23
10-12	150	50	60	20
13-18	120	40	50	15
19+	80	25	30*	*

**\*Consider using surface protection measures such as aggregate.**

Water bar Construction Guidelines: This project will use Type I waterbars.

Type I Water Bars: Intended for use on roadbeds that will not have traffic. Use on closure of temporary roads, roads to be obliterated, decommissioned or long term closure of roads in maintenance level I. These water bars are designed to remain effective until the road prism stabilizes with vegetation.

- AGGREGATE ROADS

Water bars that cut through the aggregate base of a road and reach erosive soils need to have aggregate surfacing bladed back into the water bar channel.

- COMPACTION OF BERM

Compaction of the excavated material used to make the berm on the downhill side of the water bar is recommended. Wheel-rolling or walking the excavation equipment over the downhill berm is adequate.

- ROADSIDE DITCHES

Intercept ditch water by including a ditch block during construction of all water bars..

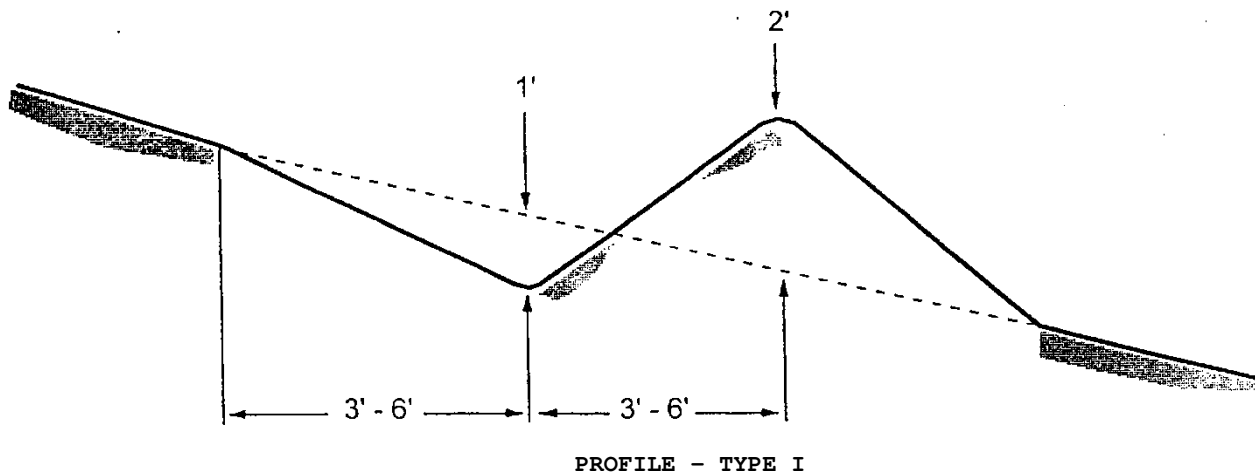
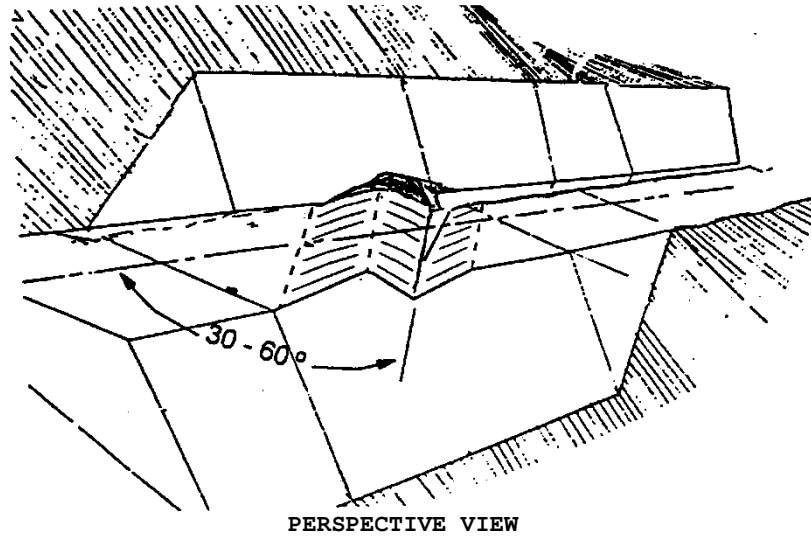
- SKEW

Construct with a 30 to 60 degree angle from road centerline.

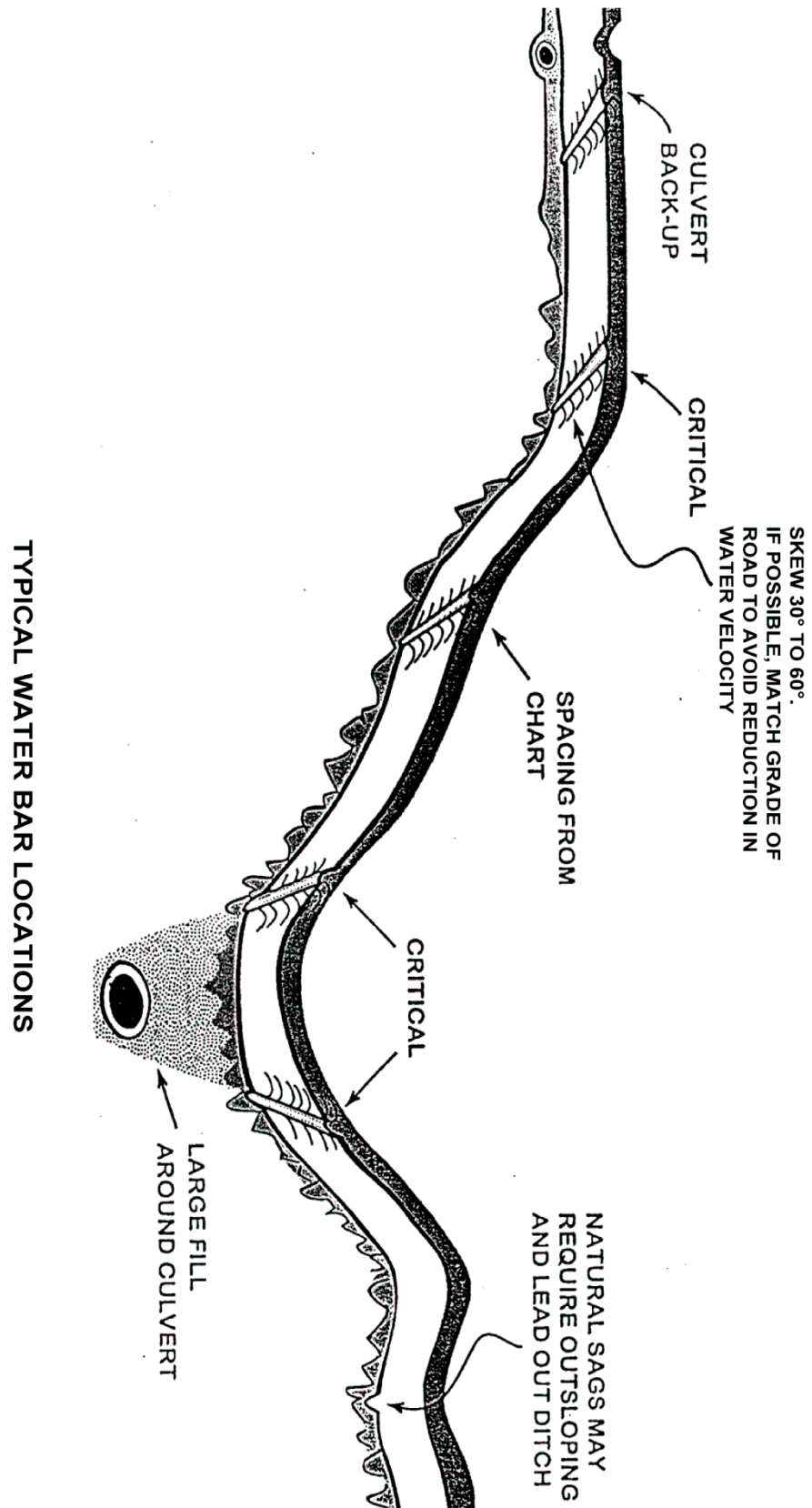
- DEPTH and WIDTH

Construction dimensions for a water bar are shown on the attached typicals. For road grades over 10% the cut depth and berm height should approach maximum values.

## WATER BAR CONSTRUCTION DETAILS



NOTE: Block ditchline with excavated material to prevent ditch water from bypassing waterbar.



Item #4 - Fill Slope Pullback Specs and Location Guidelines

Fill material placed on slopes during original construction or reconstruction shall be pulled back on to the road way leaving a finished fill slope of 1.5 (H) to 1 (V). Any areas that may trap water must be removed. Excavated material shall be placed on the cut bank side of the existing road bed, shaped to a slope of 1.5 (H) to 1 (V) or flatter, and lightly compacted.

Excavated fill material shall be placed no closer than 20 feet from perennial or intermittent stream channels. Place native material from the work area such as limbs, brush and small trees excavated during culvert fill removal on excavated fill material.

Excavation equipment shall be capable of a horizontal reach of at least 15 feet. Material beyond the reach of the equipment shall be left undisturbed on the slope.

Fill slope pullback on road 1888111 is between stations 14+20 and 17+00. Pink flagging on the ground marks station 14+20. If flagging is missing, start pull back approximately 20 feet beyond the stream culvert removal at station 14+00. Road 111 is the only road with fill slope pull back.